

WHAT IS CLAIMED IS:

1. A system for detecting a presence and its duration in a given area, comprising:

5 a mobile transmitter operable to periodically send a beacon signal having an unique identification code;

a node at a location within a given area, the node including a receiver operable to receive the beacon signal and the unique identification code from the mobile transmitter in response to the mobile transmitter being 10 within a threshold distance of the node.

2. The system of Claim 1, wherein the mobile transmitter uses a radio frequency transmission technique.

15 3. The system of Claim 1, wherein the node includes a transmitter operable to transmit an information signal to a base unit in response to receipt of the beacon signal, the information signal including information as to the unique identification code of the mobile transmitter and an identification code of the node.

20 4. The system of Claim 3, wherein the information signal includes a signal strength of the received beacon signal as determined by the node.

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5. The system of Claim 3, further comprising:

5 a base unit operable to receive the information signal from the node, the base unit operable to generate reports with respect to a presence and a duration of presence of the mobile transmitter within the threshold distance of the node in response to one or more information signals.

10 6. The system of Claim 5, wherein the base unit

includes a base computer operable to process the information signal and generate the reports.

15 7. The system of Claim 3, wherein the node is operable to periodically send the information signal to the base unit.

20 8. The system of Claim 3, wherein the node is operable to send the information signal in response to a triggering event.

9. The system of Claim 8, wherein the triggering event is receipt of a request from the base unit.

25 10. The system of Claim 1, wherein the threshold distance is programmably adjustable.

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11. The system of Claim 1, wherein the node is operable to compare a signal strength of each beacon signal received to a reference signal strength associated with the desired threshold range in order to identify whether the mobile transmitter is within the threshold range of the node and a proximity of the mobile transmitter within the threshold range.

12. The system of Claim 1, wherein the mobile transmitter and the node are each powered by standard discardable batteries.

13. The system of Claim 1, wherein the node continuously scans for beacon signals.

14. The system of Claim 1, wherein the beacon signal attenuates at a rate of  $1/r^3$  within the desired threshold range, where  $r$  is a distance between the mobile transmitter and the node.

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15. A method for detecting a presence of an object and its duration within a given area, comprising:

receiving a beacon signal from a mobile transmitter, the beacon signal including a unique identification code;

5 determining whether the beacon signal was transmitted within a desired threshold range

determining whether additional beacon signals having the unique identification code were received from within the desired threshold range;

10 determining how long a mobile transmitter was within the desired threshold range in response to a number of beacon signals received.

15. The method of Claim 15, further comprising:

discarding beacon signals received outside of the desired threshold range.

20. The method of Claim 15, wherein the beacon signal attenuates at a rate of  $1/r^3$  within the desired threshold range, where  $r$  is a distance of transmission from the mobile transmitter.

25. The method of Claim 15, wherein beacon signals are periodically received when transmitted within the desired threshold range.

30. The method of Claim 15, further comprising:

transmitting the unique identification code, a signal strength for each beacon signal received, and a number of beacon signals received.

20. The method of Claim 15, further comprising:  
determining a signal strength of the beacon signal.

21. A node for determining object presence and its  
5 duration in a given area, comprising:

a receiver operable to receive a beacon signal from  
an object periodically transmitting beacon signals, the  
beacon signal including a unique identification code;

10 a controller operable to determine whether the  
beacon signal was transmitted within a threshold range of  
the receiver, the controller operable to process  
additional beacon signals having the unique  
identification code and received from within the  
threshold range of the receiver for determination of an  
amount of time the object was within the desired  
15 threshold range.

22. The transceiver node of Claim 21, further  
comprising:

20 a transmitter operable to transmit an information  
packet, the information packet including the unique  
identification code, an identification code of the  
receiver, the signal strength of each received beacon  
signal, and a number of beacon signals received.

25 23. The transceiver node of Claim 22, wherein the  
beacon signal is received and the information packet is  
transmitted at different frequencies.

30 24. The transceiver node of Claim 21, wherein the  
desired threshold range is programmably adjustable.

25. The transceiver node of Claim 21, wherein the beacon signal is transmitted by a radio frequency transmission technique.

5 (26.) A system for detecting a presence of an object and its duration within a given area, comprising:

means for receiving a beacon signal, the beacon signal including a unique identification code;

10 means for determining whether the beacon signal was transmitted within a desired threshold range in response to the signal strength;

means for determining whether additional beacon signals having the unique identification code were received from within the desired threshold range;

15 means for determining how long a mobile transmitter was within the desired threshold range in response to a number of beacon signals received.

27. The system of Claim 26, further comprising:

20 means for determining a signal strength of the beacon signal.

28. The system of Claim 27, further comprising:

25 means for transmitting the unique identification code and signal strength of each beacon signal received.

29. The system of Claim 27, further comprising:

means for determining a specific proximity of a sender of each beacon signal within the desired threshold range in response to the signal strength.